Climate Change and Human Health Literature Portal



Uncertainties associated with quantifying climate change impacts on human health: A case study for diarrhea

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Abstract:

BACKGROUND: Climate change is expected to have large impacts on health at low latitudes where droughts and malnutrition, diarrhea, and malaria are projected to increase. OBJECTIVES: The main objective of this study was to indicate a method to assess a range of plausible health impacts of climate change while handling uncertainties in a unambiguous manner. We illustrate this method by quantifying the impacts of projected regional warming on diarrhea in this century. METHODS: We combined a range of linear regression coefficients to compute projections of future climate change-induced increases in diarrhea using the results from five empirical studies and a 19-member climate model ensemble for which future greenhouse gas emissions were prescribed. Six geographical regions were analyzed. RESULTS: The model ensemble projected temperature increases of up to 4 degrees C over land in the tropics and subtropics by the end of this century. The associated mean projected increases of relative risk of diarrhea in the six study regions were 8-11% (with SDs of 3-5%) by 2010-2039 and 22-29% (SDs of 9-12%) by 2070-2099. CONCLUSIONS: Even our most conservative estimates indicate substantial impacts from climate change on the incidence of diarrhea. Nevertheless, our main conclusion is that large uncertainties are associated with future projections of diarrhea and climate change. We believe that these uncertainties can be attributed primarily to the sparsity of empirical climate-health data. Our results therefore highlight the need for empirical data in the cross section between climate and human health.

Source: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3059990

Resource Description

Climate Scenario: M

specification of climate scenario (set of assumptions about future states related to climate)

Special Report on Emissions Scenarios (SRES), Other Climate Scenario

Special Report on Emissions Scenarios (SRES) Scenario: SRES A1

Other Climate Scenario: A1B

Communication: M

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

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Communication Audience: M

audience to whom the resource is directed

Policymaker

Exposure: M

weather or climate related pathway by which climate change affects health

Meteorological Factors, Meteorological Factors, Precipitation, Temperature

Geographic Feature: M

resource focuses on specific type of geography

Tropical, Other Geographical Feature

Other Geographical Feature: Subtropical

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Asia, Australasia, Central/South America

Asian Region/Country: Other Asian Country

Other Asian Country: Bangladesh; Japan

Health Impact: M

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Foodborne/Waterborne Disease

Foodborne/Waterborne Disease: Other Diarrheal Disease

Mitigation/Adaptation: ™

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology: **№**

type of model used or methodology development is a focus of resource

Outcome Change Prediction

Population of Concern: A focus of content

Population of Concern: M

populations at particular risk or vulnerability to climate change impacts

Children

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Resource Type:

format or standard characteristic of resource

Research Article

Timescale: M

time period studied

Long-Term (>50 years)

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content